

Application No. 10/594,592
Reply to Office Action of November 24, 2008

IN THE DRAWINGS

The attached sheet of drawings includes changes to Fig. 1. This sheet, which includes Fig. 1, replaces the original sheet including Fig. 1.

Attachment: Replacement Sheet

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Claims 15-28 are pending. Claims 1-14 were previously canceled. Claims 15, 16, 21, 22, and 24 are amended. Support for amended claims 15, 16 and 24 is found in the original claims. Support for amended claims 21 and 22 is found in the original claims and in at least Fig. 1 of the specification.

At items 6 and 7, the Office Action objected to the drawings because the specification appeared to use the reference character 13 and 14 to designate both high pressure compression units and gases. The specification has now been amended at page 9, line 23 to page 10, line 2 to be consistent with Figure 1 and the rest of the specification to clarify that elements 13 and 14 are gases and not compression units. Because the amendment to the specification simply eliminates a potential inconsistency and is supported by at least Figure 1 and other references on page 10 of the specification to compression gases 13 and 14, no new subject matter is added by this amendment. Accordingly, the objection to the drawings with respect to reference characters 13 and 14 has been overcome.

At item 8, the Office Action objected to the drawings because reference sign 10 mentioned at page 9, line 13 was not shown. Figure 1 has now been amended to show reference element 10 consistent with the specification. Accordingly, the objection to the drawings with respect to reference sign 10 has been overcome.

At item 9, the Office Action objected to the drawings because Figure 1 included references to HP1 and HP2 not discussed in the text of the specification. Because gases 21 and 22 coming out of lines HP1 and HP2 are already also labeled, Figure 1 has been amended to delete reference signs HP1 and HP2 to avoid any confusion. Accordingly, the objection to the drawings with respect to reference signs HP1 and HP2 has been overcome.

At item 10, the Office Action objected to claims 21 and 22 as indefinite with respect to the phrase the driving fluid “taken *below*” the compressor. Consistent with Figure 1 and the specification, Applicants have now amended claims 21 and 22 to more clearly state that the driving fluid is taken “*after*” the compressor rather than “*below*” it. Accordingly, Applicants submit that the objection to claims 21 and 22 has been overcome.

At items 11 and 12, the Office Action rejected claims 15-26 and 28 under 35 U.S.C. § 103 as unpatentable over Sands et al. (U.S. 4,778,443) in view of Aarebrot et al. (WO 2000/011313), Holm (U.S. 3,075,918), and Lagrone (U.S. 4,339,917).

Independent Claim 15 recites a process for treatment of fluids originating from a submarine oil field including delivering the fluid from the field to two or more separation stages where the fluid is split into a gas phase substantially consisting of light hydrocarbon gases and two liquid phases, one of which mainly consists of water, the other substantially of hydrocarbon liquids. The light hydrocarbon gases are delivered to a reinjection gas compression unit having at least two compression stages. Ejectors receive the light hydrocarbon gases from each separation stage after the high pressure separation stage and use the compressed gas exiting from one of the compression stages of the reinjection gas compression unit to drive each ejector.

The Office Action asserts that Lagrone discloses the use of compression gases exiting from a centrifugal pump as the driving fluid for an ejector and that it would have been obvious to combine this teaching with the base systems taught in Sands et al. and Aarebrot et al. in order to improve suction capability of a fluid delivery system.

Applicants respectfully traverse the rejection of claim 15. Lagrone is directed towards a fuel delivery system for a gas turbine engine such as those found on an aircraft. Col. 1, lines 9-13. As a threshold matter, it would not have been obvious to a person of ordinary skill in the art to look to the field of fuel delivery for gas turbine engines as in

Lagrone to modify systems for oil recovery as taught by Sands et al., Aarebrot et al. and Holm. Thus, it would not have been obvious to combine the disclosure of Lagrone with the oil recovery systems of Sands et al., Aarebrot et al. and Holm.

The Office Action specifically cites col. 1, lines 45-68, col. 2, lines 15-50, and Figure 1 of Lagrone as disclosing compressed gas exiting from a compression stage of the centrifugal pump as the fluid driving an ejector. Applicants respectfully disagree with this characterization of Lagrone. Lagrone using an ejector 30 to take low pressure fuel (i.e., liquid from reservoir 24) to increase its pressure. The liquid fuel coming from the ejector then goes to centrifugal pump 40 which is a hydraulically operated turbine 44. The fuel from centrifugal pump 44 is partially recycled to drive the ejector. Thus, Lagrone discloses a recycled liquid driving the ejector rather than a gas as recited in claim 15. Sands et al., Aarebrot et al., and Holm also do not disclose or suggest the use of recycled gases to drive an ejector as recited in claim 15.

Accordingly, Sands et al., Aarebrot et al., Holm, and Lagrone do not disclose or suggest the features of independent claim 15. It is submitted that independent claim 15, and dependent claims 16-26 and 28 which depend on claim 15, are in condition for allowance.

Dependent claims 20-22 are further distinguishable from cited references. These claims include the feature that each phase of compression includes a biphasic separator that removes liquid particles. Consequently, the compressed gas exiting from the compressors is lighter than the gas entering the compressor system, and more importantly, lighter than the gas received by the ejector from the gas separation stages. In contrast, in Lagrone the fluid recycled to drive the ejector is the same fluid (albeit at a higher pressure) that is sucked into the ejector and then compressed. Lagrone thus differs substantially from the process of claims 20-22 which recite a process of using a different and lighter gas (after liquid particles have been removed) to drive the ejectors than the gas being ejected. Using the same gas to

drive the ejectors would not result in the claimed process. In short, none of the cited references disclose using a different gas to drive an ejector as claimed. For this additional reason, claims 20-22 are further patentable over the cited references.

At item 13, the Office Action rejected claims 27-28 under 35 U.S.C. § 103 as unpatentable over Sands et al. in view of Aarebrot et al. and Lagrone.

Much like claim 15, independent claim 27 recites a floating production unit including a treatment system having an ejector driven by a compression gas (rather than a liquid). Thus independent claim 27 is patentable over the cited references for at least the same reasons as claim 15.

For the reasons discussed above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance for claims 15-28 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants undersigned representative at the below listed telephone number.

It is respectfully submitted that the present application is in condition for allowance, and a favorable decision to that effect is respectfully requested.

Respectfully submitted,

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